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UNITED STATES NAVAL OBSERVATORY

CIRCULAR NO. 124

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OBSERVATIONS OF THE SUN, MOON, AND PLANETS SIX-INCH TRANSIT CIRCLE RESULTS

by

A. N. Adams and D. K. Scott

This *Circular* contains positions of the sun, moon, and planets observed with the Six-Inch Transit Circle between 12 July, 1967 and 25 June, 1968. These results are provisional. Definitive results will be published later in a volume of *Publications of the U. S. Naval Observatory*.

These results are a continuation of those published in *U. S. Naval Observatory Circular* No. 118.

The observed positions are geocentric and have received the usual corrections for instrumental errors, refraction, diurnal aberration, parallax, and orbital motion. The right ascensions were reduced, differentially, to the FK4 system by means of the FK4 stars used to determine the clock correction.

The declinations of the night objects have been reduced to the FK4 system by applying a correction derived from the same stars that were used for the clock correction.

The sun, Mercury, and Venus were reduced with the clock correction of the nearest night tour and the nadirs taken at the time of the observation. Corrections for day minus night differences are not available at this time.

Observations of Mercury and Venus were made on the illuminated limb or on the center of light as indicated, and reduced with the appropriate corrections to the center of the planet. Observations of the sun, Mars, Jupiter, and Saturn were made on both pairs of limbs; those of Mars and Jupiter have been corrected for defective illumination. The tabular semidiameters from the ephemeris have been used whenever a correction from limb to center or a correction for defective illumination has been applied. The moon observations were made on the illuminated limbs as

indicated and have been reduced with the tabular values of the semidiameter corrected for irradiation (*Pub. U.S. Naval Observatory*, XVI, 378) and with limb corrections from the charts of C. B. Watts (*Astro. Papers, Vol.* 17).

The computed positions with which the observed positions are compared were derived from the tabular values of the *American Ephemeris* for the instant when the ephemeris hour angle is zero on the meridian $5^h8^m15^s.849$ west longitude. No correction has been made for the difference between Ephemeris and Universal Time. The Julian Ephemeris Dates refer to the computed times of transit. The distances, in astronomical units, are those interpolated from the *American Ephemeris* at the computed time of transit. Brown's lunation numbers have been indicated for the moon.

The observers are identified as follows:

C, H.E. Crull; D, H.E. Durgin; G, F.S. Gauss; H, R.B. Hansen; J, E.S. Jackson; K, B.L. Klock; L, R.E. Laubscher; R, R.W. Rhynsburger; S, C.A. Smith, Jr.; T, W.A. Toland; X, M.A.Seeds; Y, T.F. Corbin; Z, F.J. Giovane.

The values of ΔT from the moon observations (lunation means) are listed in Table 1. The mean value of ΔT for 1967 is $36^s.48$ ($\pm^s$ 13).

ΔT is computed by dividing (O–C) by 1.002738 times the variation per hour of longitude. The weights in right ascension are proportional to the square of 15 cos δ times the variation in right ascension per hour of longitude; those in declination are proportional to the square of the variation in declination per hour of longitude.

In order to convert from the equinox of FK4 to that of Newcomb, it is necessary to add $+1^s.34$ to the values of ΔT tabulated in this circular.

TABLE 1

Lun.	ΔT	P.E.	Lun.	ΔT	P.E.
	s	s		s	s
551	36.55	0.37	558	37.30	0.29
552	37.51	0.68	559	38.02	0.33
553	36.67	0.54	560	37.77	0.28
555	35.64	0.24	561	37.25	0.33
556	36.43	0.35	562	36.91	0.63
557	36.25	0.35			

SUN

Date	J.E.D.	O	L	Obs. R.A.	(O–C)	L	Obs. Decl.	(O–C)	Distance
	243			h m s	s		° ′ ″	″	
67 07 12.71	9684.21787	T		7 25 07.268	+.073		+22 00 15.49	-0.72	1.016580
67 07 21.71	9693.21844	X		8 01 25.356	+.099		+20 31 00.78	-1.32	1.016018
67 07 27.71	9699.21853	L		8 25 12.348	+.108		+19 15		1.015485
67 07 31.71	9703.21845	T		8 40 52.043	+.104		+18 19 23.43	-0.37	1.015051
67 08 14.71	9717.21732	R		9 34 25.971	+.052		+14 25 45.89	-0.80	1.012893
67 08 28.71	9731.21497	R		10 26 13.655	+.155		+ 9 47 21.84	-1.18	1.010042
67 08 29.71	9732.21476	R		10 29 52.520	+.182		+ 9 26 08.39	-0.73	1.009819
67 08 30.71	9733.21455	Z		10 33 30.910	+.072		+ 9 04 45.47	-0.58	1.009593
67 08 31.71	9734.21434	T		10 37 09.113	+.094		+ 8 43 12.85	-1.40	1.009364
67 09 01.71	9735.21413	C		10 40			+ 8 21 33.69	-0.23	1.009131
67 09 05.71	9739.21323	C		10 55 15.665	+.089		+ 6 53 34.81	-0.06	1.008158
67 09 06.71	9740.21300	T		10 58 52.181	+.068		+ 6 31 16.02	-1.39	1.007905
67 09 15.71	9749.21083	C		11 31 13.130	+.172		+ 3 06 32.83	-1.29	1.005503
67 09 18.71	9752.21009	G		11 41 58.301	+.098		+ 1 57 07.03	-0.34	1.004681
67 09 20.70	9754.20959	K		11 49 08.499	+.081		+ 1 10 35.95	-0.75	1.004131
67 09 22.70	9756.20910	T		11 56 18.971	+.062		+ 0 23 57.66	-1.01	1.003581
67 11 06.70	9801.20272	R		14 44 31.342	+.115		-15 55 17.56	+0.79	0.991151
67 11 08.70	9803.20279	T		14 52 30.842	+.104		-16 30 49.96	+1.28	0.990651
67 11 10.70	9805.20291	R		15 00 33.709	+.176		-17 05 15.27	+1.55	0.990163
67 11 13.70	9808.20314	K		15 12 44.110	+.142		-17 54 42.90	-0.52	0.989455
67 11 14.70	9809.20324	R		15 16 49.270	+.145		-18 10 34.03	-0.10	0.989228
67 11 15.70	9810.20335	D		15 20 55.185	+.055		-18 26 06.16	+0.20	0.989004
67 11 16.70	9811.20347	T		15 25 02.120	+.139		-18 41 18.19	+1.13	0.988785
67 11 20.70	9815.20404	D		15 41 37.793	+.007		-19 38 47.70	+1.74	0.987954
67 11 25.70	9820.20497	R		16 02 41.248	+.174		-20 42 39.40	+1.27	0.987018
67 11 26.70	9821.20519	R		16 06 56.220	+.108		-20 54 16.95	+2.22	0.986843
67 12 08.70	9833.20836	T		16 58 49.973	+.075		-22 42 03.84	+0.09	0.984976
67 12 13.70	9838.20994	T		17 20 49.626	+.114		-23 08		0.984365
67 12 15.71	9840.21060	T		17 29 39.914	+.111		-23 15 41.71	+2.42	0.984160
67 12 17.71	9842.21127	R		17 38 31.306	+.167		-23 21 11.68	+1.13	0.983978
67 12 19.71	9844.21195	K		17 47 23.369	+.095		-23 24 50.58	-1.02	0.983821
67 12 20.71	9845.21230	D		17 51 49.713	+.141		-23 25 54.05	+1.65	0.983752
67 12 26.71	9851.21437	T		18 18 28.679	+.150		-23 22 40.24	-0.54	0.983453
67 12 27.71	9852.21472	R		18 22 55.032	+.111		-23 20 26.70	+1.40	0.983420
67 12 29.71	9854.21540	T		18 31 47.381	+.085		-23 14 39.26	+1.12	0.983367
68 01 11.71	9867.21947	T		19 28 55.331	-.016		-21 52 21.51	+0.71	0.983414
68 01 17.72	9873.22100	K		19 54 47.295	+.122		-20 49 38.14	+1.39	0.983744
68 01 18.72	9874.22123	C		19 59 03.576	+.119		-20 37 44.86	+2.58	0.983821
68 01 19.72	9875.22145	T		20 03 19.135	+.094		-20 25 30.05	+1.99	0.983905
68 01 20.72	9876.22166	R		20 07 34.002	+.104		-20 12 51.86	+1.53	0.983993
68 01 22.72	9878.22206	K		20 16 01.465	+.038		-19 46 26.00	+1.99	0.984188
68 02 05.72	9892.22382	D		21 13 46.211	+.099		-16 03 00.79	+0.86	0.985986
68 02 06.72	9893.22388	C		21 17 47.414	+.011		-15 44 45.62	+1.07	0.986140
68 02 12.72	9899.22401	K		21 41 38.202	+.070		-13 49		0.987167
68 02 14.72	9901.22398	K		21 49 28.844	+.089		-13 09		0.987550
68 02 16.72	9903.22391	D		21 57 16.482	+.075		-12 28		0.987952
68 02 19.72	9906.22376	G		22 08 52.651	+.036		-11 25		0.988592
68 02 23.72	9910.22345	T		22 24 11.864	+.130		- 9 59		0.989498
68 02 25.72	9912.22325	R		22 31 47.666	+.058		- 9 14		0.989965
68 02 26.72	9913.22314	C		22 35 34.649	-.020		- 8 52 33.72	+0.52	0.990203
68 02 27.72	9914.22302	T		22 39 21.198	+.030		- 8 30 04.91	+1.88	0.990441
68 03 04.72	9920.22220	D		23 01 49.096	+.076		- 6 12 57.32	+1.39	0.991904
68 03 05.72	9921.22204	K		23 05 32.038	+.061		- 5 49 46.17	+1.09	0.992153
68 03 07.72	9923.22171	R		23 12 56.674	+.089		- 5 03 08.92	+1.93	0.992658
68 03 08.72	9924.22154	T		23 16 38.320	+.035		- 4 39 44.96	+1.80	0.992913

SUN

Date	J.E.D.	O	L	Obs. R.A.	(O–C)	L	Obs. Decl.	(O–C)	Distance
	243			h m s	s		° ′ ″	″	
68 03 11.72	9927.22100	K		23 27 41.239	+.065		- 3 29 14.57	+0.54	0.993695
68 03 14.72	9930.22043	C		23 38 41.281	+.067		- 2 18 21.54	+0.98	0.994502
68 03 15.72	9931.22023	K		23 42 20.746	+.044		- 1 54 40.47	+1.43	0.994778
68 03 19.71	9935.21942	C		23 56 56.764	+.026		- 0 19 51.80	+1.00	0.995907
68 03 20.71	9936.21921	D		0 00 35.441	+.049		+ 0 03 51.24	+1.74	0.996195
68 04 09.71	9956.21511	C		1 13 30.882	+.095		+ 7 47		1.001907
68 04 12.71	9959.21455	K		1 24 32.337	+.063		+ 8 53 14.60	+0.09	1.002752
68 04 13.71	9960.21437	R		1 28			+ 9 14 58.03	-0.36	1.003035
68 04 16.71	9963.21386	G		1 39 18.751	-.006		+10 19 14.37	+0.30	1.003887
68 04 17.71	9964.21370	G		1 43 01.373	+.054		+10 40 19.87	+0.31	1.004171
68 04 18.71	9965.21354	K		1 46 44.386	+.101		+11 01 14.20	-0.39	1.004454
68 04 19.71	9966.21339	C		1 50 27.748	+.079		+11 21 59.76	+0.82	1.004736
68 04 23.71	9970.21284	C		2 05 25.708	+.041		+12 43 03.57	+1.52	1.005848
68 04 26.71	9973.21248	K		2 16 44.243	+.083		+13 41 40.58	+0.91	1.006654
68 05 03.71	9980.21184	D		2 43 25.239	-.029		+15 50		1.008422
68 05 06.71	9983.21166	G		2 54 59.460	+.008		+16 41		1.009132
68 05 07.71	9984.21162	T		2 58 51.906	-.026		+16 58		1.009364
68 05 17.71	9994.21151	K		3 38 07.872	+.022		+19 27 13.56	-0.17	1.011580
68 05 29.71	*0006.21222	D		4 26 28.672	+.070		+21 42 23.05	+0.01	1.013825
68 06 03.71	*0011.21275	D		4 46 57.180	+.122		+22 23 02.75	+0.20	1.014552
68 06 04.71	*0012.21287	T		4 51 03.922	+.103		+22 30 01.08	+0.59	1.014683
68 06 05.71	*0013.21299	G		4 55 10.926	+.028		+22 36 34.56	-0.11	1.014811
68 06 06.71	*0014.21311	K		4 59 18.357	+.079		+22 42 45.59	+0.45	1.014934
68 06 07.71	*0015.21324	C		5 03 26.050	+.109		+22 48		1.015055
68 06 14.71	*0022.21421	D		5 32 26.206	+.118		+23 17 38.81	-0.59	1.015811
68 06 15.71	*0023.21436	Z		5 36 35.471	+.082		+23 20 11.20	-0.12	1.015907
68 06 18.71	*0026.21481	R		5 49 04.005	+.075		+23 25 18.50	-0.29	1.016167
68 06 19.71	*0027.21496	H		5 53 13.646	+.062		+23 26 12.49	+0.75	1.016245
68 06 20.71	*0028.21511	T		5 57 23.328	+.066		+23 26 40.19	+0.34	1.016317
68 06 21.71	*0029.21526	D		6 01 32.988	+.047		+23 26 43.38	+0.26	1.016384
68 06 25.71	*0033.21586	H		6 18 11.276	+.114		+23 22 47.03	-0.93	1.016594

MERCURY

67 08 14.68	9717.18955	R	C	8 54 19.898	+.216	C	+18 45 17.16	-0.59	1.244992
67 08 28.72	9731.22705	R	C	10 43 40.354	+.306	C	+ 9 49 20.37	-2.73	1.373432
67 08 29.72	9732.22919	R	C	10 50 42.237	+.280	C	+ 9 03 17.82	-2.25	1.374532
67 09 01.73	9735.23513	C	C	11 11 06.956	+.153	C	+ 6 43 22.89	-2.13	1.373203
67 09 06.74	9740.24362	T	C	11 43 04.531	+.058	C	+ 2 48 51.29	-2.49	1.357956
67 09 15.75	9749.25531	C	C	12 35 26.730	+.129	C	- 3 58 53.03	-2.58	1.299065
67 09 22.76	9756.26201	T	C	13 12 43.319	+.029	C	- 8 49 47.20	-1.21	1.230691
67 11 15.65	9810.15311	D	C	14 08 22.506	+.172	C	-10 28 35.89	-0.92	0.940461
67 11 16.65	9811.15259	T	C	14 11 34.220	+.091	C	-10 44 41.87	+0.51	0.966702
67 11 20.65	9815.15292	D	C	14 27 48.232	+.044	C	-12 14 59.81	-0.06	1.067198
67 11 25.65	9820.15690	R	C	14 53 16.015	+.208	C	-14 39 01.96	-0.73	1.176733
67 11 26.65	9821.15800	R	C	14 58 48.097	+.073	C	-15 09 18.87	-0.14	1.196145
67 12 08.67	9833.17561	T	C	16 11 32.392	+.107	C	-20 45 45.58	-0.28	1.366676
67 12 13.68	9838.18451	T	C	16 44 05.985	+.168	C	-22 32 45.02	+0.45	1.407664
67 12 17.69	9842.19211	R	C	17 10 51.044	+.208	C	-23 38 55.64	+1.12	1.429450
67 12 20.69	9845.19807	D	C	17 31 16.820	+.189	C	-24 16 06.43	-0.61	1.439713
68 01 11.74	9867.24564	T	C	20 06 42.943	+.099	C	-22 24 56.87	+1.50	1.352433
68 01 16.75	9872.25609	G	C	20 41 31.051	+.167	C	-20 16 49.76	+0.94	1.284913
68 01 17.75	9873.25806	K	C	20 48 18.180	+.100	C	-19 46 44.48	+2.26	1.268712
68 01 18.75	9874.25997	C	C	20 55 00.429	+.110	C	-19 15 18.79	+1.39	1.251557

MERCURY

Date	J.E.D.	O	L	Obs. R.A.	(O–C)	L	Obs. Decl.	(O–C)	Distance
	243			h m s	s		° ′ ″	″	
68 01 19.76	9875.26182	T	C	21 01 36.951	+.163	C	-18 42 34.05	+1.16	1.233427
68 01 20.76	9876.26359	R	C	21 08 06.725	+.164	C	-18 08 35.66	+0.86	1.214310
68 01 22.76	9878.26684	K	C	21 20 41.796	+.149	C	-16 57 23.51	+0.82	1.173080
68 02 05.76	9892.26569	D	C	22 14 13.560	+.096		- 9 03		0.808744
68 03 07.65	9923.15090	R		21 30		C	-14 33 30.87	+0.51	0.847458
68 03 08.65	9924.15036	T	C	21 33 51.756	+.130		-14 30		0.862628
68 03 14.64	9930.14999	C		21 56		C	-13 35 35.28	-0.03	0.952308
68 04 13.68	9960.18593	R	C	0 47 09.013	+.241	C	+ 2 59 18.73	+0.33	1.301373
68 05 06.74	9983.24845	G	C	3 48 06.618	+.087		+21 37		1.191839
68 05 07.75	9984.25131	T	C	3 56 10.846	+.088		+22 10		1.172770

VENUS

67 07 27.81	9699.31708	L	1	10 47 30.214	-.082		+ 4 47		0.421313
67 08 28.71	9731.21128	R	2	10 20 53.513	-.120	N	+ 1 14 43.99	+1.48	0.286732
67 08 29.70	9732.20691	R	2	10 18 32.302	-.148	N	+ 1 24 51.75	+1.52	0.286410
67 08 30.70	9733.20257	Z	2	10 16 12.070	-.180	N	+ 1 35 47.64	+1.65	0.286377
67 08 31.69	9734.19824	T	2	10 13 53.754	-.163	N	+ 1 47 27.19	+2.04	0.286634
67 09 01.69	9735.19394	C	2	10 11 38.104	-.178	N	+ 1 59 45.86	+2.93	0.287178
67 09 06.67	9740.17324	T	2	10 01 27.430	-.196	N	+ 3 07 54.85	+0.64	0.294089
67 09 18.63	9752.13257	G	2	9 50 02.755	-.027	S	+ 5 48 37.80	-0.13	0.335671
67 09 19.62	9753.12987	T	2	9 50 05.452	+.020	S	+ 5 59 21.38	-0.69	0.340442
67 09 22.62	9756.12241	T	2	9 51 08.279	-.003	S	+ 6 27 49.79	-0.05	0.355706
67 11 06.58	9801.08158	R	2	11 49 35.851	+.132	S	+ 1 46 19.73	-1.56	0.665925
67 11 08.58	9803.08135	T	2	11 57 09.787	+.095	S	+ 1 09 17.99	-0.36	0.680971
67 11 15.58	9810.08106	D	2	12 24 20.449	+.216	S	- 1 10 03.18	-2.03	0.733661
67 11 16.58	9811.08108	T	2	12 28 18.255	+.130		- 1 30		0.741181
67 11 20.58	9815.08127	D	2	12 44 21.546	+.153	S	- 2 56 58.46	-1.59	0.771210
67 11 24.58	9819.08168	T	2	13 00 42.952	+.076	S	- 4 25 40.56	-0.79	0.801115
67 11 25.58	9820.08181	R	2	13 04 51.242	+.200	S	- 4 48 11.57	-1.65	0.808566
67 12 08.58	9833.08472	T	2	14 00 17.862	+.115	S	- 9 44 40.33	-0.08	0.904143
67 12 13.58	9838.08643	T	2	14 22 28.680	+.156	S	-11 36 38.69	-0.66	0.940196
67 12 15.58	9840.08721	T	2	14 31 29.461	+.110	S	-12 20 27.91	-0.72	0.954496
67 12 19.58	9844.08894	K	2	14 49 46.363	+.238	S	-13 45 51.38	-1.66	0.982869
67 12 20.58	9845.08942	D	2	14 54 23.766	+.241	S	-14 06 38.66	-1.50	0.989912
68 01 17.60	9873.10846	K	2	17 12 17.074	+.248	S	-21 18 12.25	-0.05	1.177367
68 01 19.61	9875.11019	T	2	17 22 40.357	+.232	S	-21 34 10.56	-0.24	1.189999
68 01 20.61	9876.11107	R	2	17 27 53.102	+.160	S	-21 41 14.67	+0.77	1.196274
68 01 22.61	9878.11286	K	2	17 38 20.853	+.181	S	-21 53 35.39	+0.30	1.208740
68 02 06.62	9893.12679	C		18 57		N	-22 04 27.43	+1.56	1.298489
68 02 19.63	9906.13852	G	2	20 05 47.536	+.120		-20 15		1.370970
68 02 23.64	9910.14186	T	2	20 26 23.768	+.137	N	-19 21 39.73	+0.48	1.392248
68 02 26.64	9913.14427	C	2	20 41 41.555	+.122	N	-18 35 00.63	+1.13	1.407867
68 03 04.64	9920.14947	D	2	21 16 48.374	+.223	N	-16 27 52.22	+2.49	1.443161
68 03 05.65	9921.15017	K	2	21 21 45.234	+.263	N	-16 07 46.31	+2.42	1.448072
68 03 07.65	9923.15152	R		21 31		N	-15 26 13.53	+2.43	1.457797
68 03 08.65	9924.15218	T	2	21 36 29.357	+.189	N	-15 04 49.43	+1.08	1.462610
68 03 14.65	9930.15589	C	2	22 05 30.106	+.152	N	-12 47 53.33	+0.52	1.490814
68 03 15.65	9931.15647	K	2	22 10 16.781	+.127	N	-12 23 48.37	-1.68	1.495401
68 04 12.66	9959.16945	R	2	0 19 24.785	+.173	N	+ 0 26 37.25	+2.22	1.608967
68 04 13.66	9960.16985	R	2	0 23 56.160	+.140	N	+ 0 55 47.88	+1.35	1.612462
68 04 18.67	9965.17188	K	2	0 46 34.491	+.251	N	+ 3 21 32.36	+0.80	1.629324
68 04 19.67	9966.17229	C	2	0 51 06.529	+.132	N	+ 3 50 34.27	+1.09	1.632569

VENUS

Date	J.E.D.	O	L	Obs. R.A.	(O–C)	L	Obs. Decl.	(O–C)	Distance
	243			h m s	s		° ′ ″	″	
68 04 23.67	9970.17396	C	2	1 09 18.080	+.091	N	+ 5 45 52.59	+1.43	1.645106
68 04 26.67	9973.17527	K	2	1 23 01.064	+.197	N	+ 7 11 09.63	+0.75	1.654028
68 05 07.68	9984.18060	T	2	2 14 05.184	+.087		+12 09		1.683081
68 05 17.68	9994.18649	K	2	3 02 00.783	+.113	N	+16 11 38.80	+1.16	1.704374
68 05 29.69	*0006.19521	D	2	4 01 54.486	+.120	N	+20 07 31.69	+1.52	1.722984
68 06 06.70	*0014.20201	K	2	4 43 16.767	+.171	N	+22 02 29.85	+0.89	1.730889

JUPITER

68 01 17.32	9872.82860	G		10 28 10.782	-.042		+10 49 43.73	-0.52	4.567902
68 01 18.32	9873.82566	K		10 27 52.600	-.053		+10 51 43.98	-0.69	4.558206
68 01 19.32	9874.82271	C		10 27			+10 53 47.09	-1.31	4.548749
68 01 21.31	9876.81680	T		10 26 54.452	-.044		+10 58 04.16	-1.21	4.530570
68 01 22.31	9877.81383	R		10 26 33.896	-.038		+11 00 18.46	+0.01	4.521856
68 01 26.30	9881.80189	S		10 25 06.162	-.002		+11 09 38.21	-1.17	4.489593
68 01 27.29	9882.79889	T		10 24 42.875	-.034		+11 12 06.30	-0.02	4.482196
68 02 05.27	9891.77167	S		10 20 53.155	-.019		+11 35		4.428370
68 02 09.25	9895.75946	J		10 19 01.504	-.063		+11 47 00.69	-0.36	4.412119
68 02 13.24	9899.74720	J		10 17 05.843	-.060		+11 58 28.35	-0.77	4.400749
68 02 14.24	9900.74413	C		10 16			+12 01 21.60	-0.93	4.398677
68 02 15.24	9901.74106	K		10 16 06.882	-.052		+12 04 16.45	+0.21	4.396915
68 02 18.23	9904.73184	T		10 14 37.494	-.021		+12 12 57.05	-0.90	4.393495
68 02 19.22	9905.72876	R		10 14 07.524	-.017		+12 15 50.51	-1.10	4.392979
68 02 20.22	9906.72568	J		10 13 37.482	-.037		+12 18 43.96	-0.99	4.392776
68 02 24.21	9910.71337	G		10 11 37.390	-.002		+12 30 11.56	-1.11	4.395100
68 02 26.20	9912.70722	R		10 10 37.575	-.027		+12 35 50.55	-1.00	4.398142
68 02 27.20	9913.70415	C		10 10 07.787	-.063		+12 38 38.50	-0.83	4.400132
68 03 04.18	9919.68575	C		10 07 12.706	-.095		+12 54 54.07	-0.46	4.418548
68 03 08.17	9923.67353	R		10 05 20.964	-.061		+13 05 05.70	-0.54	4.436858
68 03 14.15	9929.65534	R		10 02 43.785	-.043		+13 19 10.28	-0.94	4.472970
68 03 20.13	9935.63732	R		10 00 22.277	-.071		+13 31 33.63	-0.41	4.518886
68 03 23.12	9938.62839	J		9 59 18.478	-.062		+13 37 01.71	-1.07	4.545312
68 03 25.12	9940.62247	T		9 58 38.774	-.027		+13 40 23.95	-1.27	4.564152

SATURN

67 09 02.29	9735.79907	T		0 45 24.560	+.053		+ 2 00 37.57	+0.48	8.586685
67 09 03.29	9736.79619	Y		0 45 11.583	+.076		+ 1 59 02.68	+0.08	8.578003
67 09 05.29	9738.79042	J		0 44 44.717	-.022		+ 1 55 50.18	+0.69	8.561408
67 09 06.28	9739.78753	C		0 44			+ 1 54 11.96	+0.95	8.553502
67 09 07.28	9740.78464	T		0 44 17.021	+.019		+ 1 52 31.75	+0.44	8.545860
67 09 19.24	9752.74976	G		0 41 13.856	-.004		+ 1 31 21.33	+0.31	8.475668
67 09 24.23	9757.73515	G		0 39 51.169	+.038		+ 1 22 04.70	+0.18	8.458630
67 09 25.23	9758.73223	T		0 39 34.238	-.047		+ 1 20 12.07	-0.26	8.456114
67 11 06.10	9800.60985	K		0 28 27.296	-.019		+ 0 11 16.12	+0.48	8.620716
67 11 07.10	9801.60698	R		0 28 15.184	+.007		+ 0 10 08.30	+0.17	8.630646
67 11 08.10	9802.60412	D		0 28 03.293	-.033		+ 0 09 03.79	+1.07	8.640818
67 11 11.09	9805.59553	T		0 27 29.544	-.002		+ 0 06 00.48	+0.97	8.672743
67 11 13.08	9807.58983	G		0 27 08.569	+.003		+ 0 04 08.80	+0.30	8.695159

URANUS

67 12 13.48	9837.98602	J		11 57 30.057	-.069		+ 1 05 20.91	-0.13	18.405713
67 12 17.47	9841.97529	C		11 57 46.675	-.047		+ 1 03 43.16	-0.37	18.337382
67 12 20.46	9844.96722	T		11 57 57.028	-.047		+ 1 02 44.33	+0.21	18.285879
67 12 27.44	9851.94830	T		11 58 13.972	-.058		+ 1 01 12.65	+0.23	18.165703
68 01 17.39	9872.89085	G		11 58 04.115	-.062		+ 1 03 10.65	-0.52	17.821238
68 01 18.38	9873.88809	K		11 58 01.445	-.036		+ 1 03 31.18	+0.01	17.805994
68 01 19.38	9874.88533	C		11 57 58.558	-.028		+ 1 03 52.61	+0.19	17.790893
68 01 21.37	9876.87979	T		11 57 52.177	-.037		+ 1 04 38.97	+0.30	17.761140
68 01 22.37	9877.87702	R		11 57 48.695	-.046		+ 1 05 03.46	-0.16	17.746490
68 01 26.36	9881.86592	S		11 57 32.950	-.046		+ 1 06 55.18	-0.04	17.689572

URANUS

Date	J.E.D.	O	L	Obs. R.A.	(O–C)	L	Obs. Decl.	(O–C)	Distance
	243			h m s	s		° ′ ″	″	
68 01 27.36	9882.86314	T		11 57 28.548	-.054		+ 1 07 26.35	+0.31	17.675783
68 02 05.33	9891.83801	S		11 56 41.058	-.059		+ 1 12 53.28	-0.39	17.560637
68 02 09.32	9895.82680	J		11 56 15.722	-.080		+ 1 15 45.72	-0.03	17.515135
68 02 13.31	9899.81556	J		11 55 48.129	-.042		+ 1 18 51.62	-0.58	17.473458
68 02 15.30	9901.80993	K		11 55 33.473	-.057		+ 1 20 28.83	-1.70	17.454122
68 02 17.30	9903.80429	D		11 55 18.315	-.057		+ 1 22 11.81	-0.24	17.435813
68 02 18.30	9904.80147	T		11 55 10.525	-.085		+ 1 23 03.47	-0.44	17.427049
68 02 19.29	9905.79865	R		11 55 02.662	-.071		+ 1 23 56.03	-0.46	17.418554
68 02 24.28	9910.78453	T		11 54 21.669	-.070		+ 1 28 28.95	-0.14	17.380167
68 02 25.28	9911.78170	K		11 54 13.173	-.065		+ 1 29 25.60	+0.17	17.373327
68 02 26.27	9912.77887	S		11 54 04.588	-.053		+ 1 30 21.72	-0.63	17.366778
68 02 27.27	9913.77604	J		11 53 55.867	-.086		+ 1 31 19.13	-0.68	17.360512
68 03 04.25	9919.75903	R		11 53 02.128	-.051		+ 1 37 13.79	-0.36	17.329082
68 03 08.24	9923.74768	S		11 52 25.053	-.078		+ 1 41 17.05	0.00	17.314101
68 03 20.21	9935.71360	R		11 50 30.974	-.059		+ 1 53 38.72	-0.62	17.298282
68 03 23.20	9938.70508	J		11 50 02.342	-.081		+ 1 56 43.64	-0.53	17.301177
68 03 25.19	9940.69940	T		11 49 43.399	-.033		+ 1 58 45.94	-0.64	17.304630
68 04 12.14	9958.64839	R		11 47 01.621	-.055		+ 2 15 58.28	-0.48	17.388842
68 04 13.14	9959.64556	R		11 46 53.394	-.038		+ 2 16 50.25	-0.51	17.396188
68 04 14.14	9960.64274	G		11 46 45.219	-.075		+ 2 17 41.60	-0.45	17.403797
68 04 16.13	9962.63709	J		11 46 29.308	-.038		+ 2 19 21.77	-0.54	17.419813
68 04 17.13	9963.63427	S		11 46 21.497	-.046		+ 2 20 11.13	-0.14	17.428205
68 04 26.10	9972.60895	D		11 45 16.727	-.057		+ 2 26 54.96	+0.38	17.514898
68 04 27.10	9973.60614	K		11 45 10.188	-.068		+ 2 27 34.62	-0.23	17.525712
68 04 28.10	9974.60334	J		11 45 03.817	-.060•		+ 2 28 14.15	+0.02	17.536743
68 04 29.10	9975.60054	S		11 44 57.595	-.052		+ 2 28 51.98	-0.41	17.547994
68 05 01.09	9977.59494	Y		11 44 45.594	-.054		+ 2 30 05.85	+0.03	17.571151
68 05 03.08	9979.58935	K		11 44 34.222	-.055		+ 2 31		17.595122
68 05 07.07	9983.57818	G		11 44 13.369	-.091		+ 2 33		17.645425
68 05 08.07	9984.57540	T		11 44 08.590	-.075		+ 2 33 49.51	+0.26	17.658462
68 05 09.07	9985.57261	C		11 44 03.961	-.077		+ 2 34 16.74	-0.05	17.671678

NEPTUNE

68 04 02.33	9948.83517	Y		15 37 17.734	-.266		-17 35 27.02	+1.99	29.591251
68 04 07.32	9953.82125	J		15 36 55.178	-.283		-17 33 58.44	+1.65	29.534282
68 04 11.31	9957.81010	J		15 36 35.418	-.343		-17 32		29.492878
68 04 12.30	9958.80731	S		15 36 30.312	-.308		-17 32 23.50	+1.00	29.483133
68 04 13.30	9959.80452	F		15 36 25.078	-.322		-17 32 02.71	+1.88	29.473636
68 04 16.29	9962.79615	C		15 36 08.994	-.305		-17 31 00.32	+3.24	29.446639
68 04 17.29	9963.79335	C		15 36 03.506	-.284		-17 30 41.55	+1.29	29.438149
68 04 26.26	9972.76817	S		15 35 10.936	-.267		-17 27 26.86	+1.46	29.373705
68 05 07.23	9983.73733	J		15 34 01.337	-.297		-17 23		29.325750
68 05 09.23	9985.73172	Y		15 33 48.324	-.258		-17 22 29.88	+1.09	29.320793
68 05 13.22	9989.72050	T		15 33 22.032	-.278		-17 20 56.74	+1.32	29.314367
68 05 19.20	9995.70366	S		15 32 42.469	-.288		-17 18 38.53	+1.41	29.313505
68 05 22.19	9998.69524	D		15 32 22.701	-.295		-17 17 31.02	+0.60	29.317030
68 05 26.18	*0002.68402	S		15 31 56.582	-.281		-17 16 00.31	+1.49	29.325817
68 05 30.17	*0006.67280	J		15 31 30.863	-.286		-17 14 32.97	+1.31	29.339226
68 06 05.15	*0012.65598	T		15 30 53.390	-.236		-17 12 27.41	+1.08	29.367843
68 06 06.15	*0013.65318	G		15 30 47.253	-.269		-17 12 06.84	+1.35	29.373579
68 06 07.15	*0014.65038	K		15 30 41.189	-.280		-17 11 46.95	+1.17	29.379582
68 06 15.12	*0022.62800	S		15 29 54.936	-.262		-17 09 15.49	+1.38	29.437123
68 06 19.11	*0026.61683	C		15 29 33.253	-.344		-17 08 06.61	+1.28	29.471997

CERES

Date	J.E.D.	O	L	Obs. R.A.	(O–C)	L	Obs. Decl.	(O–C)	Distance
	243			h m s	s		° ′ ″	″	
68 01 17.47	9872.97897	G		14 05 18.169	-.094		- 1 14 09.33	+0.05	2.445197
68 01 18.47	9873.97694	K		14 06 19.309	-.109		- 1 16 55.83	+0.08	2.432692
68 01 19.47	9874.97491	C		14 07 19.548	-.147		- 1 19 34.84	+0.62	2.420181
68 01 22.46	9877.96874	R		14 10 14.911	-.093		- 1 26 51.76	-0.09	2.382635
68 01 26.46	9881.96036	S		14 13 55.140	-.119		- 1 34 53.32	-0.26	2.332629
68 01 27.45	9882.95824	T		14 14 47.668	-.113		- 1 36 35.88	-0.58	2.320154
68 02 04.44	9890.94079	G		14 21 08.277	-.114		- 1 45 48.42	+0.59	2.221183
68 02 05.43	9891.93854	S		14 21 50.652	-.115		- 1 46 25.41	-0.15	2.208961
68 02 15.41	9901.91533	K		14 27 45.082	-.124		- 1 45 51.79	-0.21	2.089558
68 02 18.40	9904.90807	T		14 29 05.283	-.111		- 1 43 23.10	-0.07	2.055002
68 02 19.40	9905.90561	R		14 29 29.185	-.096		- 1 42 20.07	-0.49	2.043641
68 02 24.39	9910.89308	T		14 31 06.474	-.147		- 1 35 19.18	+1.06	1.988178
68 02 25.39	9911.89052	K		14 31 21.431	-.109		- 1 33 36.14	+0.28	1.977381
68 02 26.38	9912.88795	S		14 31 34.766	-.152		- 1 31 46.14	-0.07	1.966691
68 02 27.38	9913.88535	J		14 31 46.532	-.191		- 1 29 49.94	-0.48	1.956113
68 03 04.36	9919.86940	R		14 32 24.033	-.170		- 1 16 02.44	+0.54	1.895221
68 03 07.36	9922.86118	J		14 32 21.121	-.139		- 1 07 55.21	+0.11	1.866610
68 03 08.35	9923.85840	S		14 32 16.900	-.138		- 1 05 03.21	-0.32	1.857370
68 03 14.34	9929.84133	Y		14 31 17.624	-.169		- 0 46 17.36	+0.17	1.805318
68 04 02.28	9948.78310	Y		14 22 06.840	-.178		+ 0 22 24.55	+0.47	1.686389
68 04 03.27	9949.77988	T		14 21 24.527	-.160		+ 0 25 59.56	+0.14	1.682380
68 04 07.26	9953.76689	J		14 18 25.037	-.154		+ 0 39 52.11	+0.30	1.668837
68 04 11.25	9957.75373	J		14 15 11.582	-.201		+ 0 52 42.63	+0.42	1.659365
68 04 12.25	9958.75042	S		14 14 21.488	-.181		+ 0 55 43.32	+0.54	1.657643
68 04 14.24	9960.74378	G		14 12 39.515	-.180		+ 1 01 26.93	-0.24	1.654983
68 04 16.23	9962.73712	C		14 10 55.614	-.179		+ 1 06 47.76	+0.09	1.653374
68 04 17.23	9963.73379	C		14 10 03.093	-.164		+ 1 09 18.46	+0.38	1.652966
68 04 22.21	9968.71706	F		14 05 36.975	-.154		+ 1 20 02.31	+0.09	1.654917
68 04 26.20	9972.70368	D		14 02 03.635	-.180		+ 1 26 11.99	-0.10	1.661279
68 04 28.19	9974.69700	J		14 00 18.253	-.170		+ 1 28 23.36	-0.06	1.666049
68 04 29.19	9975.69367	S		13 59 26.079	-.190		+ 1 29 15.20	+0.24	1.668827
68 05 08.16	9984.66398	T		13 52 03.156	-.210		+ 1 29 33.74	+1.12	1.705277
68 05 09.16	9985.66073	C		13 51 17.879	-.165		+ 1 28 43.84	+0.22	1.710554
68 05 19.12	9995.62886	S		13 44 42.481	-.140		+ 1 11 14.19	+0.26	1.775726
68 05 20.12	9996.62575	C		13 44 09.359	-.178		+ 1 08 33.89	0.00	1.783420
68 05 22.11	9998.61957	D		13 43 07.108	-.134		+ 1 02 44.82	+0.15	1.799408
68 05 30.09	*0006.59548	J		13 39 52.543	-.143		+ 0 33 11.83	+0.27	1.870838
68 06 04.08	*0011.58096	K		13 38 37.240	-.135		+ 0 09 57.42	+0.30	1.920925
68 06 05.07	*0012.57810	T		13 38 26.529	-.124		+ 0 04 53.69	-0.06	1.931389
68 06 06.07	*0013.57527	G		13 38 17.273	-.117		- 0 00 16.84	+0.40	1.941991
68 06 07.07	*0014.57245	K		13 38 09.428	-.121		- 0 05 35.73	+0.07	1.952729
68 06 15.05	*0022.55047	S		13 37 57.905	-.082		- 0 52		2.043094

PALLAS

67 12 13.45	9837.95798	J		11 16 59.800	-.465		-14 54 38.31	-2.01	1.989004
67 12 17.45	9841.95038	C		11 21 47.509	-.471		-15 03 17.04	-1.89	1.944476
67 12 20.44	9844.94455	T		11 25 12.756	-.440		-15 07 45.27	-2.61	1.910837
67 12 27.43	9851.93053	T		11 32 33.266	-.481		-15 10 36.94	-1.81	1.831844
68 01 17.38	9872.88404	G		11 48 13.704	-.554		-13 59 05.20	-2.51	1.599295
68 01 18.38	9873.88164	K		11 48 42.233	-.632		-13 52 04.32	-2.76	1.588750
68 01 19.37	9874.87922	C		11 49 09.306	-.555		-13 44 39.80	-1.76	1.578282
68 01 21.37	9876.87433	T		11 49 58.391	-.584		-13 28 44.25	-1.82	1.557593
68 01 22.37	9877.87185	R		11 50 20.427	-.632		-13 20 11.87	-2.35	1.547383
68 01 26.36	9881.86176	S		11 51 31.960	-.598		-12 41 58.88	-2.84	1.507547

PALLAS

Date	J.E.D.	O	L	Obs. R.A.	(O–C)	L	Obs. Decl.	(O–C)	Distance
	243			h m s	s		° ′ ″	″	
68 02 05.33	9891.83512	S		11 52 29.937	-.681		-10 36 32.71	-2.45	1.416932
68 02 09.32	9895.82391	J		11 52 05.151	-.711		- 9 33		1.385229
68 02 13.31	9899.81240	J		11 51 14.048	-.713		- 8 24 24.18	-2.33	1.356660
68 02 15.30	9901.80654	K		11 50 38.973	-.740		- 7 47 01.18	-1.53	1.343661
68 02 17.30	9903.80060	D		11 49 57.878	-.712		- 7 07 59.29	-1.26	1.331576
68 02 18.29	9904.79761	T		11 49 35.086	-.737		- 6 47 52.76	-1.87	1.325890
68 02 19.29	9905.79460	R		11 49 10.915	-.724		- 6 27 22.66	-2.26	1.320450
68 02 24.27	9910.77932	T		11 46 49.957	-.769		- 4 39 19.17	-1.69	1.297120
68 02 25.27	9911.77622	K		11 46 18.086	-.771		- 4 16 41.47	-1.36	1.293265
68 02 26.27	9912.77311	S		11 45 45.104	-.770		- 3 53 46.42	-1.93	1.289694
68 02 27.26	9913.76999	J		11 45 11.077	-.755		- 3 30 33.23	-1.50	1.286408
68 03 04.25	9919.75103	R		11 41 28.286	-.786		- 1 06 17.75	-1.65	1.272945
68 03 08.23	9923.73825	S		11 38 47.127	-.790		+ 0 33 05.84	-0.96	1.270135
68 03 20.19	9935.69978	R		11 30 32.436	-.772		+ 5 30 47.77	-1.33	1.292112
68 03 23.19	9938.69024	J		11 28 35.879	-.767		+ 6 41 59.82	-1.26	1.304664
68 03 25.18	9940.68392	T		11 27 21.625	-.723		+ 7 28 10.29	-2.13	1.314553
68 04 12.12	9958.62932	R		11 19 29.329	-.691		+13 19 15.05	-1.90	1.452956
68 04 13.12	9959.62644	R		11 19 15.924	-.665		+13 34 49.63	-2.18	1.462926
68 04 14.12	9960.62357	G		11 19 03.958	-.683		+13 49 58.91	-1.83	1.473099
68 04 16.11	9962.61788	J		11 18 44.598	-.664		+14 18 59.07	-1.83	1.494043
68 04 17.11	9963.61507	S		11 18 37.161	-.680		+14 32 50.84	-1.62	1.504803
68 04 26.09	9972.59052	D		11 18 39.080	-.616		+16 18 43.92	-1.97	1.609428
68 04 27.08	9973.58788	K		11 18 46.918	-.614		+16 28 28.23	-1.91	1.621828
68 04 28.08	9974.58525	J		11 18 56.240	-.649		+16 37 49.38	-1.67	1.634364
68 04 29.08	9975.58265	S		11 19 07.155	-.592		+16 46 46.83	-2.06	1.647033
68 05 01.07	9977.57749	Y		11 19 33.318	-.609		+17 03 34.98	-1.81	1.672746
68 05 03.07	9979.57240	K		11 20 05.393	-.602		+17 18		1.698929
68 05 07.06	9983.56242	G		11 21 26.672	-.590		+17 45		1.752559
68 05 08.05	9984.55996	T		11 21 50.475	-.563		+17 51 08.99	-1.48	1.766204
68 05 19.03	9995.53392	S		11 27 36.826	-.529		+18 34 41.61	-1.54	1.921268
68 05 22.02	9998.52711	D		11 29 36.247	-.499		+18 40 48.78	-1.64	1.964808

MOON

Lun.	Date	J.E.D. 243	O	L	Obs. R.A. h m s	(O–C) s	L	Obs. Decl. ° ′ ″	(O–C) ″
551	67 07 17.04	9688.54212	C	1	15 29 06.610	1.480	N	-20 50 53.75	-6.08
	67 07 22.24	9693.74463	X	2	20 41 14.138	1.461	S	-23 28 11.84	+6.04
	67 07 23.28	9694.77996	Z	2	21 36 11.477	1.327	N	-19 20 06.05	+7.67
	67 07 24.31	9695.81230	C	2	22 26 49.765	1.289		-14 22	
552	67 08 15.03	9717.53495	R	1	17 13 05.927	1.697		-26 49	
	67 08 16.07	9718.57621	L	1	18 16 36.645	1.746	S	-27 54 03.00	+0.23
	67 08 20.22	9722.72480	X	2	22 06 56.157	1.264	S	-16 22 29.10	+7.41
	67 08 22.28	9724.78431	T	2	23 40 44.792	1.107	N	- 5 21 15.75	+8.02
553	67 09 16.13	9749.63914	C	1	21 49 41.898	1.293	S	-18 07 44.99	+6.95
	67 09 18.19	9751.69931	K	1	23 24 27.509	1.180	S	- 7 25 02.47	+8.66
	67 09 19.22	9752.72720	G	2	0 08 40.658	1.119	S	- 1 37 22.78	+8.36
	67 09 24.37	9757.87252	G	2	3 58 13.599	1.222		+23 30	
	67 09 25.40	9758.90674	T	2	4 51 34.500	1.500	N	+26 21 25.72	+3.10
555	67 11 07.93	9802.43223	D	1	20 19 53.291	1.525	S	-24 58 18.21	+4.31
	67 11 08.96	9803.46849	K	1	21 16 11.556	1.349	S	-21 09 13.15	+5.69
	67 11 10.00	9804.50138	C	1	22 07 36.662	1.253	S	-16 24 48.12	+6.72
	67 11 11.03	9805.53156	T	1	22 55 08.190	1.149	S	-11 05 09.49	+9.01
	67 11 13.08	9807.58724	G	1	0 23 25.077	1.021	S	+ 0 20 40.99	+7.59
	67 11 16.17	9810.67105	D	1	2 36 16.023	1.164		+16 37	
	67 11 19.26	9813.76961	G	2	5 10 24.567	1.372	N	+27 02 29.91	+2.17
	67 11 24.45	9818.95206	C	2	9 53 34.385	1.381	S	+17 44 11.41	-6.06
556	67 12 07.94	9832.44537	T	1	22 37 07.949	1.209	S	-13 01 33.92	+8.36
	67 12 13.08	9837.58589	D	1	2 19 45.361	1.140	S	+14 58 22.40	+7.61
	67 12 14.11	9838.61597	T	1	3 07 07.874	1.219	S	+19 37 38.12	+6.07
	67 12 16.18	9840.68271	T	1	4 51 23.282	1.446	N	+26 19 30.68	+3.37
	67 12 17.21	9841.71925	C	2	5 48 05.224	1.471		+27 51	
	67 12 20.33	9844.83161	T	2	8 42 10.022	1.469	S	+23 23 00.16	-6.14
	67 12 21.36	9845.86690	D		9 37		S	+19 04 40.09	-6.13
557	68 01 17.28	9872.78043	G	2	9 18 39.124	1.402	S	+20 30 58.03	-6.01
	68 01 18.31	9873.81524	K	2	10 12 51.261	1.415	S	+15 20 30.15	-8.28
	68 01 19.34	9874.84854	C	2	11 04 53.143	1.261	S	+ 9 18 41.62	-9.54
	68 01 22.44	9877.94660	R	2	13 38 18.232	1.349	S	-10 37 41.59	-9.20
558	68 02 05.94	9892.44162	D	1	2 28 16.987	1.214	S	+16 24 24.38	+7.10
	68 02 09.03	9895.53933	R	1	5 01 11.693	1.436		+26 59	
	68 02 11.11	9897.61421	D	1	6 57 12.648	1.408	N	+27 50 44.77	-2.96
	68 02 12.15	9898.65254	R	1	7 56 30.217	1.567	N	+25 53 54.06	-4.78
	68 02 13.19	9899.69008	K	1	8 54 38.917	1.433	N	+22 23 55.07	-6.61
	68 02 14.22	9900.72621	C	2	9 50 45.400	1.441	N	+17 32 40.24	-8.18
	68 02 15.26	9901.76085	K	2	10 44 42.996	1.366	S	+11 38 01.68	-9.77
	68 02 17.32	9903.82756	D	2	12 28 55.261	1.400	S	- 1 55 14.22	-10.12
	68 02 18.36	9904.86119	T	2	13 21 25.277	1.425	S	- 8 47 57.11	-10.53
	68 02 19.39	9905.89617	R	2	14 15 53.008	1.510	S	-15 12 59.87	-10.25
559	68 03 07.98	9923.48501	R	1	5 33 09.405	1.453		+28 02	
	68 03 10.06	9925.55982	C	1	7 29 04.000	1.537	N	+27 08 52.26	-4.19
	68 03 12.13	9927.63390	K	1	9 23 54.567	1.526	N	+20 07 18.17	-8.18
	68 03 14.20	9929.70366	R	1	11 12 31.507	1.372	N	+ 8 11 30.93	-11.32
560	68 04 11.14	9957.64492	K	1	11 38 06.600	1.423		+ 4 52	
	68 04 12.17	9958.67905	R	1	12 31 19.825	1.411		- 2 18	
	68 04 13.21	9959.71442	R	2	13 26 20.697	1.426	S	- 9 32 28.87	-11.12
	68 04 14.25	9960.75191	G	2	14 24 24.998	1.547	S	-16 17 09.56	-9.58
	68 04 16.33	9962.83493	C	2	16 32 11.097	1.795	S	-26 06 27.75	-6.42
	68 04 17.37	9963.87932	C	2	17 40 13.276	1.867		-28 14	
	68 04 19.46	9965.96517	K	2	19 52 04.068	1.597	N	-26 17 47.93	+3.64

MOON

Lun.	Date	J.E.D.	O	L	Obs. R.A.	(O–C)	L	Obs. Decl.	(O–C)
		243			h m s	s		° ′ ″	″
561	68 05 07.02	9983.52082	G	1	10 21 25.270	1.284		+14 19	
	68 05 08.05	9984.55361	T	1	11 12 42.721	1.363	N	+ 8 07 55.32	-10.08
	68 05 09.08	9985.58652	C	1	12 04 10.298	1.292	N	+ 1 18 46.59	-11.18
	68 05 13.23	9989.73774	T	2	15 58 17.766	1.771	S	-24 11 58.13	-8.06
	68 05 17.41	9993.91477	R	2	20 29 40.887	1.563	N	-24 08 59.02	+6.90
562	68 06 06.03	*0013.52995	G	1	12 32 52.563	1.390		- 2 44	
	68 06 07.06	*0014.56372	K	1	13 25 34.541	1.379	N	- 9 36 03.94	-10.40
	68 06 15.39	*0022.89708	D	2	21 58 28.251	1.426	N	-16 30 40.98	+8.23
	68 06 16.42	*0023.92968	Z	2	22 49 28.935	1.190	N	-10 44 09.56	+8.12

CORRECTION

UNITED STATES NAVAL OBSERVATORY CIRCULAR NO. 105

OBSERVATIONS OF THE SUN, MOON, AND PLANETS

SIX-INCH TRANSIT CIRCLE RESULTS

Page				° ′ ″		° ′ ″
8	line 34	Obs.Decl.	for	+3 16 03.64	read	+3 14 21.38
		(O-C)	for	+1.91	read	-0.35